

CLAIMS

We claim:

5 1. A biochip cartridge comprising:

a) a nucleic acid amplification chamber comprising:

i) an inlet port

ii) an outlet port comprising a valve to control the exit of amplification reaction mixture;  
and,

10 b) a pump.

2. A biochip cartridge as in claim 1 further comprising a heater.

3. A biochip cartridge as in claim 1 further comprising a detection chamber comprising a substrate an array of electrodes, each comprising:

15 i) a self-assembled monolayer;

ii) a capture binding ligand; and,

interconnects to allow the electrical connection of said electrodes to a processor.

4. A biochip cartridge as in claim 1 wherein said reaction mixture is PCR amplicon.

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5. A biochip cartridge as in claim 1 wherein said reaction mixture is the product of an isothermal nucleic acid amplification reaction.

6. A biochip cartridge as in claim 5 wherein said amplification reaction is selected from the group 25 consisting of NASBA, SDA, RCA, and TMA.

7. A biochip cartridge according to claim 1 wherein said valve is a check valve.

8. A check valve according to claim 2 wherein said check valve is a duck bill valve.

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9. A check valve according to claim 2 wherein said check valve is a cantilever valve.

10. A biochip cartridge according to claim 1 wherein said valve is a burst valve.

11. A biochip cartridge according to claim 1 wherein said pump is an air pump.

12 A biochip comprising:

- a) one or more resistive heaters;
- b) a thermal conductive layer;
- c) a printed circuit board; and,
- d) a layer of solder mask.